REMARKS

Claims 1, 4-10, 12-16 and 19-22 were pending at the time of examination. Claims 1, 10, 16 and 21 have been amended. Claim 8 has been canceled. No new matter has been added. The Applicants respectfully request reconsideration based on the foregoing amendments and these remarks.

Claim Rejections – 35 U.S.C. § 112

Claims 1, 10, 16 and 21 were rejected under 35 U.S.C 112, first paragraph as failing to comply with the written description requirement. In particular, the limitation recited as "...defines a context within which the differential name has an unambiguous meaning..." in claims 1, 10, 16, and 21 was objected to as not being mentioned in the specification. The Applicants have amended the expression to read "... defines a context within which the differential name is distinct...", for which support can be found on page 12 of the specification, and which is in accordance with the Examiner's interpretation of the rejected limitation, as noted on page 3 of the most recent Office Action. The Applicants respectfully submit that claims 1, 10, 16, and 21 now comply with the written description requirement, and that the rejection under 35 U.S.C 112, first paragraph be withdrawn.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 4-8, 10, 12, 14, 16, 19, 21 and 22 were rejected under 35 U.S.C § 103(a) as being unpatentable over U.S. Patent No. 5,991,173 to Unger et al. (hereinafter "Unger") in view U.S. Patent No. 6,163,811 to Porter et al., and in further view of Ainon "Storing text using integer codes," 1986, *Proceedings of the 11th conference on Computational linguistics* (hereinafter Ainon). The Applicants respectfully traverse this rejection.

Generally, the distinctions between the Applicants' invention and the prior art can be described as follows: A source program is a description of an algorithm. An object program is an implementation of that algorithm, typically produced automatically with a compiler. The prior art describes various ways for compressing a source program, based on information in the source program. Similar techniques can be used for compressing an object program based on information in the object program. In contrast, the Applicants' invention, as defined by the claims, pertains to methods and apparatus for compressing an object program based on structural information in the source program.

Turning now specifically to claim 1, claim 1 has been amended to more precisely identify the invention by incorporating the limitations of claim 8 (now canceled). As amended, claim 1 explicitly states that the computer source program is compiled into an object code file containing differential names. It is respectfully submitted that none of the cited prior art, alone or in combination, shows a compilation scheme where the end result is an object code file containing differential names.

Furthermore, claim 1 recites:

> "determining a differential name for the **encoded** program symbol name relative to a base symbol identifying a **containing scope** for the program symbol, wherein the containing scope is selected from a group consisting of: a namespace, a package, a module, a container object, and a function, and defines a **context** within which the differential name is distinct, and wherein the differential name is formed at least in part by a sequence of characters constituting a subset of the encoded program symbol name;"

That is, in the Applicants' invention the differential name is determined for the **encoded** program symbol name - **not** for any program symbol that is part of the source program. Expressed differently, the Applicants' invention, as defined in claim 1, takes a **translation** of the original source program (i.e., the encoded program symbol names) and generates a compressed form (i.e., a differential name) of this translation. The encoded program symbols that are compressed in the Applicants' invention never appear within the source program. In contrast, all the compression techniques in the cited art relate to compression of an original representation – which is analogous to the source program in the Applicants' invention - and not on a translation of the original, as claimed.

Furthermore, all the compression techniques disclosed in the cited art all rely on the existence of a "corpus of previously encountered symbols" and a comparison or search of this corpus to generate the compressed version of the symbol. For example, Unger's technique (see col. 8, line 61) depends on identifying unique words in an unstructured source text and their frequency of occurrence, which is consistent with unstructured text compression; Porter's base/delta format is compression between a changed text and an original version of the same text; Ainon relies on a structured word list. In contrast, the Applicants' invention does not require any such "corpus of previously encountered symbols." The differential name, as defined in claim 1, is defined relative to a base symbol that identifies a containing scope. This containing scope defines a context within which the differential name is distinct. That is, the compression occurs relative to the **context** of the **encoded** program symbol name, which is

known a priori and without the aid of any prior corpus. Furthermore, claim 1 specifically identifies a limited number of containing scopes, such as, a namespace, a package, a module, a container object, and a function. No such contexts or containing scopes are mentioned in any of the cited prior art documents.

Lastly, none of the cited compression techniques operate to generate an object code file containing differential names. Unger compresses HTML objects "representing a stored picture, video, or sound" (*see* Unger, Fig. 8 and col. 8). These objects are clearly not the results of translating computer programs, as discussed above, and the end result is clearly not an object code file containing differential names. Porter's base/delta format is compression between two versions of a changed text, whereas the Applicants' invention pertains to generating a differential name for a symbol relative to an enclosing scope. Porter does compression with the purpose of reducing the bandwidth of a source distribution system and makes no mention of compressing a stored form of the sources, let alone compressing a translated form of the sources, as required by claim 1. In both Unger and Porter, the compression occurs relative to an unstructured sequence of words. There is no semantic relationship between the "prior form" and the "new form." In contrast, the Applicants' invention, as defined in claim 1, exploits a semantic relationship. Ainon is directed to compression and processing of English text, and describes a family of word groups and an indication of a position within that family. In Ainon, the membership of a word within a word group does not contribute to compression, but only to analysis of the text, such as for confirming good grammar. In contrast, in the Applicants' invention, the compression techniques uses on membership of an identifier within a scope when the compression is done. Furthermore, the word groups in Ainon are defined a priori based on the structure of the English language, whereas the Applicants' invention relies on the structure of individual programs for compression. For at least the above reasons, it is respectfully submitted that claim 1 is neither anticipated or rendered obvious by any of the cited prior art documents, alone or in combination, and it is respectfully submitted that the rejection of claim 1 be withdrawn.

Claim 16 is a *Beauregard* claim corresponding to claim 1. For reasons substantially similar to those set forth above, the Applicants respectfully contend that the rejection of claim 16 is unsupported by the cited art and should be withdrawn.

Claims 4-7 and 9 depend from claim 1, and the rejections of these claims are unsupported by the cited art for at least the reasons discussed above with regards to claim 1, and should be withdrawn.

Claims 19-20 depend from claim 16, and the rejections of these claims are unsupported by the cited art for at least the reasons discussed above with regards to claim 16, and should be withdrawn.

Claim 10 describes a method for generating encoded program symbol names in an uncompressed form, and was rejected for the same rationale that was set forth in the rejection of claim 1. Claim 10 contains limitations relating to program symbol names, base symbols, and differential program symbol names and formats. Consequently, for at least the reasons discussed above with regards to claim 1, the Applicants respectfully contend that the rejection of claim 10 is unsupported by the cited art and should be withdrawn.

Claim 12 depends from claim 10, and the rejection of this claim is therefore unsupported by the cited art for at least the same reasons, and should be withdrawn.

Claim 21 is a *Beauregard* claim corresponding to claim 1. For reasons substantially similar to those set forth above, the Applicants respectfully contend that the rejection of claim 16 is unsupported by the cited art and should be withdrawn.

Claim 13 was rejected for substantially the same reasons as claim 1. Claim 13 includes the limitation that the enhanced compiler includes "one or more differential names corresponding to the program symbol names." The program symbol names and the differential names have been discussed above with respect to the rejection of claim 1. For reasons substantially similar to those set forth above with regards to claim 1, the Applicants respectfully contend that the rejection of claim 13 is unsupported by the cited art and should be withdrawn.

Claims 14 and 15 depend from claim 13, and the rejections of these claims are unsupported by the cited art for at least the reasons discussed with regards to claim 13, and should be withdrawn.

Conclusion

The Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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